

REMARKS

Claims 2-10, 20, 21, 36-39 and 46-50 are pending in the application. Claims 2-10, 20, 21, 36-39 and 46-50 are rejected. No claims are allowed.

Claim 36 has been amended to more clearly describe and distinctly claim the subject matter Applicants consider their invention. Specifically, claim 36 has been amended to specify that the shape of the catalyst member has been changed by bending and/or compressing the catalyst member to conform to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe without loss of catalytic material. Support for the amendment can be found throughout the specification and figures as originally filed, *e.g.*, page 17, line 23 to page 18, line 19; Figures 7A-C. Accordingly, no new matter has been introduced by this amendment.

Reconsideration of the claim rejections and allowance of the pending claims in view of the amendments above and following remarks are respectfully requested.

Claim Rejections – 35 U.S.C. § 103

a. Claims 2-5, 7-10, 21 and 36-39 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Gorynin et al. (US 5,204,302; “Gorynin”) in view of Rondeau (US 4,027,367; “Rondeau”), optionally further in view of Ishida (US 4,455,281; “Ishida”), for essentially the reasons of record. In response to Applicants’ arguments submitted with their Request for Continued Examination on April 18, 2008, that none of the references teaches or suggests conforming the shape of a catalyst member to a bend or curve in an exhaust system without loss of catalytic material, the Examiner states that Gorynin discloses “corrugating” and “rolling” a catalyst strip into a cylinder, which is considered the same as “bending,” and the cylinder is considered as having “curve” because the cross-section of the cylinder is a circle. Applicants respectfully traverse this basis for rejection.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), viz., (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art. “[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, all the claim limitations must be taught or suggested by the prior art. *See In re Royka*, 490 F.2d 981, 985, 180 USPQ 580 (CCPA 1974). Furthermore, although the analysis need not identify explicit teachings directed to the claimed subject matter, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 82 USPQ2d 1385, 1396 (2007). As such, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)).

Claim 36 (and claims 2-10, 20, 21, 37-39 and 46-50 dependent therefrom) is directed to a method for treating the exhaust stream from an internal combustion engine comprising, *inter alia*, flowing the exhaust stream from an internal combustion engine into contact with a catalyst member, wherein the shape of the catalyst member has been changed by bending and/or compressing the catalyst member to conform to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe without loss of catalytic material. Applicants have added the

“longitudinal” limitation to claim 36 to further differentiate the catalyst strip disclosed in Gorynin, which is rolled into a cylinder. The Examiner asserts that the cylinder is considered as having a “curve” because the cross-section of the cylinder is circular. Even if this were true, the claim requires that the bend or curve be within an exhaust manifold or exhaust flow pipe, not the cross-section of the catalyst member. Nothing in Gorynin teaches or suggests that the rolled catalytic cylinder can be bent or compressed to conform to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe without loss of catalytic material, as the instant claims require. This is confirmed at ¶ 12 of the Declaration Under 37 C.F.R. § 1.132 of Michael P. Galligan (“the ‘195 Galligan Declaration”), submitted on November 26, 2007, in the instant case. This failure to teach or suggest the claim limitation is enough to defeat a *prima facie* case of obviousness. See *Royka*, 490 F.2d 981 at 985.

Furthermore, the Examiner has pointed to nothing in the cited references that would have suggested to one of skill in the art the desirability of conforming the catalyst member to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe. See *Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157, 1172 (Fed. Cir. 2008) (“The mere fact that the prior art can be modified does not make the modification obvious unless the prior art suggests the desirability of the modification.”). As noted at page 1 of Exhibit A to the ‘195 Galligan Declaration, this ability to conform to the bends in an exhaust pipe allows for more rapid lightoff and improved catalytic oxidation, since the walls of the bend is where gases sweep as they turn through the bend. It is only Applicants’ specification that teaches the placement of a catalyst member within the curve of an exhaust pipe for improved catalysis. Applicants submit that reading this limitation back into the cited references, where there is no suggestion to do so, is nothing more than impermissible hindsight, which cannot form the basis of a *prima facie* case of obviousness.

See In re Marshall, 578 F.2d 301, 304 (CCPA 1978) (“The problem with this rejection is that nowhere in any reference is there any suggestion to control weight by turning off the production and release of pancreatic enzymes. Although it has long been known that pancreatic enzymes are involved in digestion, from this record it appears that applicant is the first to suggest controlling weight by decreasing the quantity of pancreatic enzymes in the small intestine. To say this would have been obvious is to resort to impermissible hindsight.”).

Accordingly, Applicants submit that claims 2-5, 7-10, 21 and 36-39 are not unpatentable over Gorynin in view of Rondeau, optionally further in view of Ishida, and reconsideration of this basis for rejection is respectfully requested.

b. Claims 2-10, 20, 21, 36-39 and 46-50 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Gorynin in view of Rondeau and Ernest (US 4,451,441; “Ernest”), optionally further in view of Ishida and JP 8-319,824 (or EP 0831211; “EP ‘211”), for essentially the reasons of record. However, the Examiner now asserts that EP ‘211 can be further optionally applied to teach that the catalysts are positioned in curved portions of the exhaust pipes (noting Figures 16 A-B). Applicants respectfully traverse this basis for rejection.

Contrary to the Examiner’s assertion, Figures 16A and B of EP ‘211 do not suggest to one skilled in the art that exhaust purifier 50 can be shaped to fit into a bent portion of an exhaust pipe. In this respect, Applicants are herewith providing the Declaration Under 37 C.F.R. § 1.132 of Michael P. Galligan submitted on October 30, 2007, in related U.S. Patent Application No. 10/612,658; “the ‘658 Galligan Declaration”). As noted in ¶¶ 17-18 of the declaration, although exhaust purifying apparatuses 61 and 63 contain curved portions, none of the exhaust purifiers are positioned in the curved portions. Rather, they are all placed in the linear regions of the apparatuses due to the fact that they are not conformable or bendable. Thus, even if combined,

the references do not teach or suggest placement of a catalyst member within a bent or curved portion of an exhaust pipe, let alone retention of the catalytic coating following placement. *See Royka*, 490 F.2d 981 at 985.

Accordingly, Applicants submit that claims 2-10, 20, 21, 36-39 and 46-50 are not unpatentable over Gorynin in view of Rondeau and Ernest, optionally further in view of Ishida and EP '211, and reconsideration of this basis for rejection is respectfully requested.

c. Claims 2, 6-10, 20, 21, 36-39 and 46-50 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Ernest in view of Ishida, optionally further in view of EP '211, for essentially the reasons of record. As discussed above in section (b), the Examiner now asserts that EP '211 can be further optionally applied to teach that the catalysts are positioned in curved portions of the exhaust pipes (noting Figures 16 A-B). Applicants respectfully traverse this basis for rejection.

As discussed above in section (b), and contrary to the Examiner's assertion, Figures 16A and B of EP '211 do not suggest to one skilled in the art that exhaust purifier 50 can be shaped to fit into a bent portion of an exhaust pipe. As noted at ¶¶ 17-18 of the '658 Galligan Declaration submitted herewith, although exhaust purifying apparatuses 61 and 63 contain curved portions, none of the exhaust purifiers are positioned in the curved portions. Rather, they are all placed in the linear regions of the apparatuses due to the fact that they are not conformable or bendable. Thus, even if combined, the references do not teach or suggest to one skilled in the art the placement of a catalyst member within a bent or curved portion of an exhaust pipe, let alone retention of the catalytic coating following placement. *See Royka*, 490 F.2d 981 at 985.

Accordingly, Applicants submit that claims 2, 6-11, 20, 21, 36-39 and 46-50 are not unpatentable over Ernest in view of Ishida, optionally further in view of EP '211), and reconsideration of this basis for rejection is respectfully requested.

d. Claims 3-5 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Ernest and Ishida, optionally further in view of EP '211), and further in view of Donomoto et al. (US 4,798,770; "Donomoto") or Draghi et al. (US 6,042,879; "Draghi"), for essentially the reasons of record. As discussed above in section (b), the Examiner now asserts that EP '211 can be further optionally applied to teach that the catalysts are positioned in curved portions of the exhaust pipes (noting Figures 16 A-B). Applicants respectfully traverse this basis for rejection.

As discussed above in section (b), and contrary to the Examiner's assertion, Figures 16A and B of EP '211 do not suggest to one skilled in the art that exhaust purifier 50 can be shaped to fit into a bent portion of an exhaust pipe. As noted at ¶¶ 17-18 of the '658 Galligan Declaration submitted herewith, although exhaust purifying apparatuses 61 and 63 contain curved portions, none of the exhaust purifiers are positioned in the curved portions. Rather, they are all placed in the linear regions of the apparatuses due to the fact that they are not conformable or bendable. Thus, even if combined, the references do not teach or suggest to one skilled in the art the placement of a catalyst member within a bent or curved portion of an exhaust pipe, let alone retention of the catalytic coating following placement. See *Royka*, 490 F.2d 981 at 985.

Accordingly, Applicants submit that claims 3-5 are not unpatentable over Ernest and Ishida, optionally further in view of EP '211), and further in view of Donomoto or Draghi, and reconsideration of this basis for rejection is respectfully requested.

§ 1.132 Declaration

According to the Examiner, the unexpected results described in the '195 Galligan Declaration are unpersuasive because it is unclear whether the rigid tubes described therein were made in accordance with the present invention and, in any event, the declaration fails to compare the claimed invention to the closest prior art, namely Gorynin and the disclosed pliable catalyst that can be corrugated and rolled. In addition, the Examiner asserts that the limitation of the shape of the catalyst member, "has been changed by bending and/or compressing the catalyst member," is considered to be a product-by-process limitation, and thus apparently not entitled to any patentable weight even in view of the declaration.

Applicants respectfully disagree with the Examiner's characterization of the '195 Galligan Declaration and the claimed invention. First, Applicants note that the declaration specifically states at page 3 of Exhibit A to the '195 Galligan Declaration that all of the tested catalyst members were prepared using "Engelhard's MC20B technology . . . , [which is] based upon patented segregated washcoat technology which permits optimum dispersion and distribution of the precious metals to maximize their performance." Thus, all the tested catalyst members were prepared in a similar fashion, thus allowing for meaningful comparisons of the catalytic activities of the catalyst members.

Second, as discussed above in section (a), whether the catalyst strip in Gorynin can be corrugated and rolled is irrelevant because the instant claims require that the bend or curve be within an exhaust manifold or exhaust flow pipe, not the cross-section of the catalyst member. Nothing in Gorynin teaches or suggests that the rolled catalytic cylinder can be bent or compressed to conform to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe without loss of catalytic material, as the instant claims require. As such, Applicants

maintain that the FlexTube catalyst made in accordance with the claimed invention and placed within a curved portion of an exhaust pipe was compared to the closest prior art, namely a rigid tube placed in a straight portion of an exhaust pipe. Pages 14-15 of Exhibit A to the '195 Galligan Declaration clearly show that the close-coupled FlexTube catalyst achieved twice the HC conversion and 50% more CO conversion than a rigid catalyst located 300 mm downstream in a straight portion of the exhaust pipe.

Finally, Applicants dispute the Examiner's assertion that the limitation of the shape of the catalyst member in the instant claims is a product-by-process limitation, and thus not entitled to any patentable weight. The claims recite that "the shape of the catalyst member has been changed by bending and/or compressing the catalyst member to conform to a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe." The clearly conveys to one skilled in the art that the bent or compressed catalyst member resides in the bent or curved portion of the exhaust manifold or exhaust flow pipe, a structural limitation, which, as discussed above, is not taught or suggested by the cited references.

Furthermore, even if the shape of the catalyst member is properly considered a "product-by process" limitation, MPEP § 2113 specifically states that "[t]he structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product." Here, the limitation in question clearly implies a particular structure of the catalyst member, namely its bent or compressed configuration while residing in a longitudinal bend or curve within an exhaust manifold or exhaust flow pipe. As such, it is incumbent upon the Examiner to give weight to this limitation

when assessing the patentability of the claims. See *In re Garner*, 412 F.2d 276, 279 (CCPA 1979) (“The trouble with the solicitor’s approach is that it necessarily assumes that claim 1 should be construed as a product claim containing a process, rather than structural, limitation. However, it seems to us that the recitation of the particles as ‘interbonded one to another by interfusion between the surfaces of the perlite particles’ is as capable of being construed as a structural limitation as ‘intermixed,’ ‘ground in place,’ ‘press fitted,’ ‘etched,’ and ‘welded,’ all of which at one time or another have been separately held capable of construction as structural, rather than process, limitations.”). When analyzed properly in this light, the claims are clearly patentable over the cited references for the reasons discussed above.

CONCLUSION

It is believed that claims 2-10, 20, 21, 36-39 and 46-50 are now in condition for allowance, early notice of which would be appreciated. No fees are believed due at this time. If any fees are due, however, the Commissioner is authorized to charge Deposit Account No. 05-1070. Please contact the undersigned if any further issues remain to be addressed in connection with this submission.

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